CLAIMS

1. The use of an enterobacterium OmpA protein, or of a fragment thereof, for preparing a pharmaceutical composition intended to generate or increase a cytotoxic T response against an infectious agent or a tumor cell.

2. The use as claimed in claim 1, characterized in that said pharmaceutical composition also comprises, combined with said enterobacterium OmpA protein, an antigen or a hapten specific for said infectious agent or for said tumor cell.

3. The use as claimed in either of claims 1 and 2, characterized in that said infectious agent is a viral particle, a bacterium or a parasite.

4. The use as claimed in one of claims 1 to 3, characterized in that said enterobacterium OmpA protein, or a fragment thereof, is obtained using a method of extraction from a culture of said enterobacterium.

5. The use as claimed in one of claims 1 to 3, characterized in that said enterobacterium OmpA protein, or a fragment thereof, is obtained via the recombinant route.

6. The use as claimed in one of claims 1 to 5, characterized in that said enterobacterium is Klebsiella pneumoniae.

7. The use as claimed in claim 6, characterized in that the amino acid sequence of said OmpA protein, or a fragment thereof, comprises:
a) the amino acid sequence of sequence SEQ ID No. 2;

b) the amino acid sequence of a sequence having at least 80% homology with the sequence SEQ ID No. 2; or

c) the amino acid sequence of a fragment of at least 5 amino acids of a sequence as defined in a).

8. The use as claimed in one of claims 2 to 7, characterized in that said antigen or hapten is chosen from peptides, lipopeptides, polysaccharides, oligosaccharides, nucleic acids, lipids or any compound capable of specifically directing the CTL response against said infectious agent or said tumor cell.

9. The use as claimed in one of claims 2 to 8, characterized in that said antigen or hapten is coupled to or mixed with said OmpA protein or a fragment thereof.

10. The use as claimed in claim 9, characterized in that said antigen or hapten is coupled, by covalent attachment, with said OmpA protein or a fragment thereof.

11. The use as claimed in claim 10, characterized in that the coupling by covalent attachment is coupling produced by chemical synthesis.

12. The use as claimed in claim 11, characterized in that one or more attachment elements is(are) introduced into said OmpA protein, or a fragment thereof, and/or into said antigen or hapten, in order to facilitate the chemical coupling.

13. The use as claimed in claim 12, characterized in that said attachment element introduced is an amino acid.

14. The use as claimed in claim 10, characterized in that the coupling between said antigen or hapten and said OmpA protein, or a fragment thereof, is produced by genetic recombination, when said antigen or hapten is peptide in nature.

15. The use as claimed in claim 14, characterized in that the pharmaceutical composition comprises a nucleic acid construct encoding said hybrid protein.

16. The use as claimed in claim 15, characterized in that said nucleic acid construct is contained in a vector, or in a transformed host cell capable of expressing said hybrid protein.

17. The use as claimed in one of claims 1 to 16, for preparing a pharmaceutical composition intended to eliminate infectious agents or inhibit tumor growth.

18. The use as claimed in one of claims 1 to 17, for preparing a pharmaceutical composition intended to prevent or treat infectious diseases comprising viral, bacterial, fungal and parasitic infections.

19. The use as claimed in one of claims 1 to 17, for preparing a pharmaceutical composition intended to prevent or treat cancers.

20. The use as claimed in claim 19, for preparing a pharmaceutical composition intended to prevent or treat cancers associated with a tumor antigen.

21. The use as claimed in claims 19 and 20, for preparing a pharmaceutical composition intended to prevent melanomas.

22. The use as claimed in one of claims 1 to 21, characterized in that said pharmaceutical composition is vehicled in a form which makes it possible to improve its stability and/or its immunogenicity.

23. The use as claimed in claim 22, characterized in that said vehicle is a liposome, a viral vector containing a nucleic acid construct encoding said OmpA protein, or a fragment thereof, said antigen or hapten, or said hybrid protein, or a transformed host cell capable of expressing said OmpA protein, or a fragment thereof, said antigen or hapten, or said hybrid protein.

24. The use as claimed in one of claims 15, 16 and 23, characterized in that said nucleic acid construct, or the nucleic acid construct contained in said vector or said transformed host cell, comprises a nucleic acid sequence chosen from the sequence SEQ ID No. 1, a fragment thereof having at least 15 consecutive nucleotides of the sequence SEQ ID No. 1, or a sequence having at least 80% homology with one of said sequences.

25. A pharmaceutical composition, characterized in that it comprises, in a pharmaceutically acceptable medium, at least one enterobacterium OmpA protein, or a fragment thereof, combined, by mixing or by coupling, with at least one antigen or one hapten associated with or specific for a tumor cell.

26. The composition as claimed in claim 25, characterized in that said enterobacterium OmpA protein, or a fragment thereof, is obtained using a method of extraction from a culture of said enterobacterium.

27. The composition as claimed in claim 25, characterized in that said enterobacterium OmpA protein, or a fragment thereof, is obtained via the recombinant route.

28. The composition as claimed in one of claims 25 to 27, characterized in that said enterobacterium is Klebsiella pneumoniae.

29. The composition as claimed in claim 28, characterized in that the amino acid sequence of said OmpA protein, or a fragment thereof, comprises:

a) the amino acid sequence of sequence SEQ ID No. 2;

b) the amino acid sequence of a sequence having at least 80% homology with the sequence SEQ ID No. 2; or

c) the amino acid sequence of a fragment of at least 5 amino acids of a sequence as defined in a).

30. The composition as claimed in one of claims 25 to 29, characterized in that said antigen or hapten is chosen from peptides, lipopeptides, polysaccharides, oligosaccharides, nucleic acids, lipids or any compound capable of specifically directing a CTL response against said tumor cell.

31. The composition as claimed in one of claims 25 to 30, characterized in that said antigen or hapten is coupled, by covalent attachment, with said OmpA protein or a fragment thereof.

32. The composition as claimed in claim 31, characterized in that the coupling by covalent attachment is coupling produced by chemical synthesis.

33. The composition as claimed in claim 32, characterized in that one or more attachment elements is(are) introduced into said OmpA protein, or a fragment thereof, and/or into said antigen or hapten, in order to facilitate the chemical coupling.

34. The composition as claimed in claim 33, characterized in that said attachment element introduced is an amino acid.

35. The composition as claimed in claim 31, characterized in that the coupling between said antigen or hapten and said OmpA protein, or a fragment thereof, is produced by genetic recombination, when said antigen or hapten is peptide in nature.

36. The composition as claimed in claim 35, characterized in that the pharmaceutical composition comprises a nucleic acid construct encoding the hybrid protein obtained after said coupling.

37. The composition as claimed in claim 36, characterized in that said nucleic acid construct is contained in a vector, or in a transformed host cell capable of expressing said hybrid protein.

38. The composition as claimed in either of claims 36 and 37, characterized in that said nucleic acid construct comprises a nucleic acid sequence chosen from the sequence SEQ ID No. 1, a fragment thereof having at least 15 consecutive nucleotides of the sequence SEQ ID No. 1, or a sequence having at least 80% homology with the sequence SEQ ID No. 1.

39. The composition as claimed in one of claims 25 to 38, characterized in that said pharmaceutical

composition is vehicled in a form which makes it possible to improve its stability and/or its immunogenicity.

40. The composition as claimed in claim 39, characterized in that said vehicle is a liposome, a viral vector containing a nucleic acid construct encoding said OmpA protein, or a fragment thereof, said antigen or hapten, or said hybrid protein, or a transformed host cell capable of expressing said OmpA protein, or a fragment thereof, said antigen or hapten, or said hybrid protein.

41. The composition as claimed in one of claims 25 to 40, characterized in that said pharmaceutically acceptable medium consists of water, of an aqueous saline solution or of an aqueous solution based on dextrose and/or on glycerol.

42. The composition as claimed in one of claims 25 to 41, characterized in that said composition also contains a detergent.

43. The composition as claimed in one of claims 25 to 42, without any other adjuvant for inducing a CTL response.

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